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Medical Panel Recommendations:
Automatic External Defibrillators and Enhanced Medical Kits

ATA Medical Panel
December 8, 1997

Executive Synopsis

The Medical Committee recommends that ATA member airlines place defibrillators on at least twenty per cent of their fleets as the initial phase of implementation, upgrade Emergency Medical Kits [EMKs] to meet Joint Aviation Requirements [JAR], and modify flight attendant training as required by these changes.

Background

There has been extensive publicity over the past two years regarding inadequacies in contents of emergency medical kits and flight attendant training to handle in-flight medical emergencies. Qantas has carried defibrillators since 1991. Recently, other foreign carriers have begun placing defibrillators aboard their aircraft. American Airlines' decision to place defibrillators on its transoceanic aircraft, to upgrade its emergency medical kits, and to provide additional training to flight attendants, has elevated the visibility of these issues to the press and to the Congress. Following hearings in May 1997, Chairman Duncan of the House Aviation Subcommittee wrote to the ATA urging members to follow American's lead as an alternative to legislative mandates

From a scientific standpoint, there are few data to guide a decision on defibrillators. The issue, like drug testing of air crew, is emotional, and data cannot forestall a legislative mandate to address the concerns of the public. Thus, the ATA has an opportunity to asset industry leadership and to retain control of the issues.

Emergency medical kits have been essentially unchanged since they were first mandated by the FAA in 1986. The U.S. kits are being increasingly criticized for their unfavorable comparison to the kits mandated by the European JAR. Again, little information is available on the experience with the U.S. kits to justify keeping the contents unchanged. Indeed, if defibrillators are placed aboard aircraft, medications will have to be added to comply with the guidelines of the American Heart Association and other groups regarding the appropriate treatment of heart beat irregularities which would be discovered by using a defibrillator.

Finally, if defibrillators and expanded medical kits are placed on our aircraft, flight attendant training must be commensurate.

Defibrillators

Sudden cardiac arrest, the leading cause of death in the U.S., kills more than 350,000 people **each year.** Nearly 90% of these events are caused by abnormal heart rhythm. Most commonly ventricular fibrillation. **In** fibrillation, the heart's pumping action stops abruptly and death ensures in minutes unless normal heart rhythm is restored. The only definitive way to do this is to use a defibrillator to reorganize the heart's electrical system. The chance of survival decreases by 7 to 10 percent each minute between the onset of fibrillation, and successful defibrillation. Cardiopulmonary resuscitation [CPR[alone is not effective in increasing survival.

Defibrillator technology has advanced to the point that defibrillation can be accomplished highly reliably by flight attendants using automatic external defibrillators [AEDs]. AEDs are portable, light weight, compact, virtually maintenance free, and simple to use. AEDs come in several forms: monophasic or biphasic, and with or without monitoring. Monophasic and biphasic refer to the wave form of the shock delivered by the machine. Biphasic wave forms appear to be just as effective as the older Monophasic forms, but require less energy, and therefore, cause less damage to heart muscle. Less energy means the unit needs a smaller capacitor and battery, thus smaller unit size and weight. A monitoring AED has a small screen that shows an electrocardiographic tracing of the heart rhythm. Although an AED will deliver a shock without this feature, having the tracing allows a physician to administer life-saving drugs that cannot be given without such a tracing. It may also give the physician information that would avoid unscheduled medical diversions. Qantas, Virgin Air, and American airlines have all had many more uses of their AEDs for monitoring than for defibrillation. **The Medical committee recommends, therefore, that member airlines procure biphasic, monitoring AEDs.**

Even though diversion can be more readily accomplished during domestic flights than during transoceanic flights, sudden cardiac arrest victims must be defibrillated within four minutes to achieve a 60% survival rate. **Thus, AEDs should be installed aboard both transoceanic and domestic fleets. Member fleets initially should have AEDs installed in twenty percent of each aircraft type.** That will enable data collection on AED usage by flight segment length, and could result in a subsequent decision to equip only certain aircraft types.

The cost of the AEDs [including extra batteries] and mounting brackets will be approximately $3,200 apiece.

Enhanced Medical Kits

The European JAR governing enhanced medical kits requires ten drugs in addition to the four required by the FAA It also requires a tourniquet, a small box for safe disposal of used needles, and **a** urinary catheter not required by the FAA. Standardization of our emergency medical kits with those of European carriers would be well-received by physicians paged to assist with in-flight emergencies. Most complaints come from physicians who have had experience with European emergency medical kits, and find ours severely lacking by comparison. **The ATA Medical Committee is working with the FAA and the Aerospace Medical Association [AsMA] to develop an emergency medical kit that would meet the JAR specifications and would replace the current medical kit for all aircraft. For aircraft equipped with monitoring AEDs, the medical kit should be further expanded to include several cardiac drugs which can only be administered safely while monitoring heart rhythm.**

These expanded emergency medical kits will be larger than the current kits, and their size will make it difficult to place them on the flight deck. Ideally, they would be stowed in a standard location and be collocated with AEDs. To preclude pilferage, they should be secured within the cabin.

When the ATA, FAA and AsMA have agree on emergency medical kit changes, member airlines should begin installation of the new emergency medical kits.

It will not be possible to determine the costs of the new kits until the precise specifications have been determined. However, it appears that the cost per kit will be in the $500-600 range in comparison to the $54 cost of today's kit.

Training

Any AED-equipped aircraft should have at least one flight attendant on-board who is trained to use the device. The **actual flight attendant training requires 2.5 - 3 hours.**

AED training should be integrated into the training for initial flight attendant qualification.

Recurrent flight attendant training should include AED training. A short "hands-on" module during recurrent training will reinforce skills, techniques and protocols used during cardiac arrest.

To address the concerns of Chairman Duncan, and to preclude legislative or FAA training mandates, the ATA and FAA should develop minimal flight attendant training standards for managing in-flight medical emergencies.